AMENDMENTS TO THE DRAWINGS

Please replace Figures 2A, 2B, 3A, 3B, 4A, 5, 7, and 8 with amended drawings submitted herewith under separate letter to the draftsperson. The Figures are replaced by replacement Figures of the same number each on its own respective sheet 3, 4, 5, 6, 7, 13, 15, and 16.

AMENDMENTS TO THE SPECIFICATION

Please replace the following paragraph(s) in the specification as follows:

The paragraph beginning at page 7, line 1:

In another aspect, the present invention includes a method of tracking a contour of a driving surface to absorb shock. The method includes automatically and independently raising and lowering a plurality of arms of a vehicle suspension to accommodate variations in the contour. In order to do this, the system provides feed forward by a mechanical shock absorber. The system may provide additional feed forward by taking up excess fluid in an expansible reservoir in fluid communication with the mechanical mechanism. Then the step of raising and lowering the plurality of arms is accomplished by providing feedback to a processor; which raises and lowers the arms under processor control.

The paragraph beginning at page 8, line 8:

The automatic and tracking aspects of the method described above are particularly applicable to the method implemented with and controlled by an ECU. However, many of the same steps are also provided in the method as it applies to the mechanically controlled and aligned system. For example in one aspect, a method of tracking a contour of a driving surface to absorb shock includes automatically and independently raising and lowering a plurality of arms of the vehicle suspension to accommodate variations in the contour by a mechanical mechanism. Like the aspects described above, this method includes providing

feed forward by at least one mechanical shock absorber. Like the system described above, this system may provide additional feed forward by taking up excess fluid in an expansible reservoir in fluid communication with the mechanical mechanism. Another step is providing feedback via the mechanical mechanism to an actuator. The method also includes raising and lowering the arms by the actuator according to the feedback.

The paragraph beginning at page 8, line 4:

FIG. 1B is a diagrammatic end view of the frame and suspension of Figure 1A showing a variety of lean positions of the frame and wheels;

The paragraph beginning at page 8, line 10:

FIG. 3A is a perspective view of an arm assembly of the suspension according to the embodiments of Figures[[1-2]] 1A-2B above;

The paragraph beginning at page 10, line 4:

As shown in Figure 1A, a driver 5 is seated on a vehicle 10 that is supported on a frame and suspension system 15 in accordance with the present invention. In the example of Figure 1A, the frame and suspension system includes a front frame 20 and a swing arm frame 23. Each of frames 20 and 23 has separate suspensions in the form of arm assemblies 25. Each arm assembly 25 is independently and pivotally connected to the frames 20, 23. The arm assemblies 25 support wheels 28 at outboard ends. The wheels 28, of course, support the frame and suspension system 15 and the vehicle 10 on a driving surface 30.

The paragraph beginning at page 10, line 25:

Figure 2A is a perspective view of a frame and suspension system 33 with a frame 34 similar to frame 20, but having a length sufficient to support a whole vehicle. This particular

configuration lends itself to supporting a bicycle, such as a recumbent bicycle. However, combination with any vehicle, motorized or not, whether existing or not yet designed, is within the spirit and scope of the invention. Likewise, frames of any configuration can be substituted for the frames 20, 23, and 34 as long as the substituted frames provide similar mountings to the exemplary embodiments described herein. Figure 2A shows the frame 34 leaned to one side. That is, the frame 34 is leaned toward at least one arm assembly 25 and away from the other arm assembly 25 on an opposite side of the frame 34.

The paragraph beginning at page 12, line 15:

The shock absorber 48 is connected to the actuator arm 54 at a third connection 75 that is disposed at an angle from the second connection relative to the first connection 69. The angle is defined as the angle between respective lines through the first and second connections and through the first and third connections. This angle can be in the range from zero to ninety degrees. Specifically, this angle is normally selected to be approximately forty-five degrees. The third connection 75 is located outboard of the second connection 72. That is, when the arm assembly is on a vehicle, the third connection 75 will be located farther from the frame than the second connection. Referring back to Figure 2A it can be seen that the third connection 75 is located above the upper control arm 36 at one end of the range of motion. The third connection 75 is below the upper control arm 36 at the other end of the range of motion. Thus, the shock absorber 48 has an end to end position that is generally horizontal or parallel to a respective upper control arm 36 at one end of the range of motion. The shock absorber reaches a position that is at approximately forty-five degrees relative to planes defined by the upper control arm 36 and the lower arm 35 at the other end of the range of motion.

The paragraph beginning at page 14, line 27:

Figure 4A is a sectional view of the actuator housing 57 taken along lines[[4-4]] 4A-4A of Figure 3A. The lead screw 81 and ball nut 84 are received in a lead screw opening 94. The lead screw opening 94 can be provided by boring the housing 57. A thrust bearing 95 is

disposed at a lower end of the opening 94 for receiving a lower end of the lead screw 81. The lead screw 81 has a lead screw gear 96 for receiving a driving force, a bushing 99, and a thrust bearing 102 supported thereon. The lead screw 81 and its associated components are enclosed by the lead screw cover 78. This can be accomplished by providing a threaded connection 105 between the cover 78 and the housing 57. A seal may also be provided between the cover 78 and the housing 57.

The paragraph beginning at page 20, line 20:

When the load is withdrawn and the lower arm 35 moves in a direction away from the frame as[[shown]] indicated by arrow 191 in Figure 2B, the fluid 172 flows freely in the opposite direction through the control valve 178, fluid reservoir 174, and into the actuation cylinder 143. The fluid also flows out of a low pressure side of the actuation cylinder 143 and into a fourth fluid line 184 and into the a low pressure side of the fluid driven rack and pinion 142. An equilibrium pressure can be adjusted to urge the plunger 171 and the actuation drive shaft 167 into a non-deflected position when the position indicator cam 160 is rotated away from the actuation cylinder 143. As can be appreciated, the suspension arms are not regularly forced downward (in a direction opposite to arrow 190 in Figure 4G) by impact forces from going over bumps. Furthermore, forces moving the suspension arms away from the frame 20, 23, 34 are much less than those forces moving the suspension arms toward the frame 20, 23, 34. Therefore, the safety features are only needed on the high pressure side or portion of the fluid system that sends fluid 172 to the fluid driven rack and pinion 142 as the lower arm is moved in a direction of the arrow 190 toward the frame 20, 23, 34 as shown in Figure 4G.

The paragraph beginning at page 21, line 12:

Further shown in the embodiment of Figure 4A, a position sensor 127 in the form of a potentiometer is fixedly mounted in the housing 57 proximate to a first connection pin 130. As shown in Figure 4E, which is a sectional view taken along lines 4E-4E of Figure 4A, the first connection pin 130 has a gear 133 fixed thereon. The first connection pin 130 is press fitted

or otherwise fixed to the actuator arms 54, (as[[shown in Figure 3B]] may be appreciated from Figures 4A and 4E). Thus, as the actuator arms are rotated, the first connection gear 133 is rotated through an equivalent angle. The first connection gear registers with a potentiometer gear 136 so that the angle of rotation of the actuator arm 54 is sensed by the potentiometer of the position sensor 127. The potentiometer is held in place on the housing by a bracket 139. Loosening the bracket allows rotation of the potentiometer for proper calibration before tightening again. The potentiometer is an outboard position sensor since the angular movement between the actuator arm 54 and the housing correspond to the angular movement between the hub assembly 42 and the lower arm 35. Alternatively, the potentiometer could be fixedly mounted to the lower arm 35 in alignment with the hub pin 93 and an input shaft 140 of the potentiometer could be non-rotatively coupled to an end of the hub pin 93 as shown in Figure 5. However, the outboard position sensor positioned thus could be more vulnerable to damage.

The paragraph beginning at page 23, line 6:

Figure 7 is a perspective view of a steering mechanism 200 that can be incorporated for controlling the rear steering in a vehicle of the present invention. The steering mechanism incorporates a rotary rack and pinion 205. The rack moves pistons in hydraulic cylinders 210. The pinion is actuated by a rear steering actuator motor 215 that can be integral with or added on to a rotary rack and pinion housing. The rear steering actuator motor 215 turns a worm gear 220 that actuates or engages an input shaft 225 of the rack and pinion 205. The input shaft 225, in turn, actuates the pinion of the rack and pinion 205. In this way, fluid is forced out of one of the cylinders 210 and moves a respective piston in cylinders that actuate tie rods. A rear steering position sensor, such as a potentiometer connected to the pinion shaft or a magnetic position sensor in one of the hydraulic cylinders (not shown in Figure 7), can sense the position of the steering. The rear steering position sensor 230 is operably associated with the other electric components of the system as shown in Figure 8. A similar steering mechanism can be implemented on a front steering of a vehicle of the present invention.

The paragraph beginning at page 28, line 9:

It should be further noted that the position of the shock absorbers 48 can be changed without departing from the spirit and scope of the invention. For example, instead of the configuration shown in Figures 2A and 2B, the upper control arm 36 can be configured to connect to[[a]] the pair of actuator arms 54 at a location between the actuator arms 54 instead of at a pair of opposite outside positions[[shown in Figures 2A and 3A]]. With this configuration, a pair of shock absorbers 48 can be placed on opposite outside positions instead of between the pair of actuator arms as shown in Figure 2A. This double shock absorber arrangement would be of particular benefit with heavier vehicles may have larger and heavier frames. Another alternative arrangement for the shock absorbers is to provide the shock absorbers inside the frame.